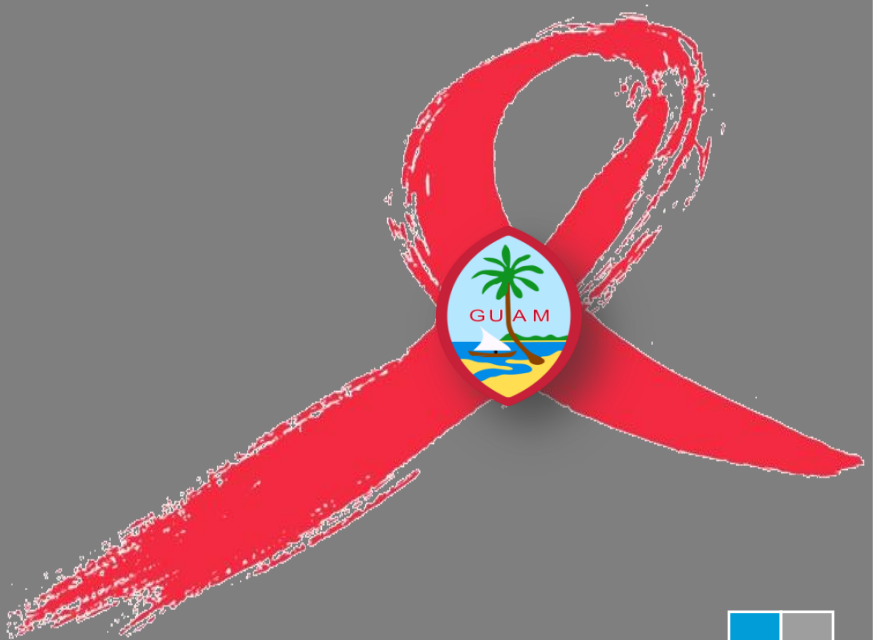




Guam

HIV/AIDS Epidemiologic Profile



STD/HIV Program - Bureau of Communicable Disease Control
Department of Public Health and Social Services - Mangilao, Guam





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Summary

- At the time of the 2010 U.S. Census, Guam had 159,358 residents.
- Of these residents, nearly half of the population identified as *Pacific Islander* (49%), while *Asian* accounted for 32% and *Multiple Races* 9%.
- The median household income was \$39,052 (USD) with 29% of individuals and 27% of households below poverty level.
- In 2012, there were a total of 2680 test events carried out with seven (7) newly diagnosed HIV positive results from clients who tested at the STD/HIV Program at DPHSS. An additional four (4) cases were reported to DPHSS from private clinics or laboratories.
- Between 1985 and 2012, 244 cases of HIV/AIDS were reported to the Guam Department of Public Health and Social Services.
- Of these 244 cases, 208 (85%) of HIV/AIDS cases were among men, 36 (15%) of cases were among women.
- Among HIV/AIDS cases reported since 1985, men who have sex with men (MSM) risk behavior accounted for 50% of HIV/AIDS cases, heterosexual contact 21%, both MSM and intravenous drug use (IDU) 4% and only IDU 4%.
- In 2012, MSM (including MSM/IDU) accounted for 10 out of the 11 HIV/AIDS cases (91%) diagnosed in the year.
- Of the 244 cases reported between 1985 and 2012, a majority (91%) of HIV/AIDS cases diagnosed in the jurisdiction between 1985 and 2012 were between the ages of 20 and 49 years.
- Of the 92 HIV/AIDS cases diagnosed during the past decade (2003-2012), 37 (66%) of HIV positive individuals were known to be living in Guam (as of December 31, 2012), 11 (20%) individuals have passed away, and 8 (14%) have left Guam to another jurisdiction.

Introduction

The Guam Department of Public Health and Social Services (DPHSS) receives funding from the U.S. Centers for Disease Control and Prevention (CDC) to collect information about HIV infection and AIDS diagnosis among Guam residents. The HIV/AIDS data are used to characterize and predict the HIV epidemic at the local, regional, and national levels. These data are summarized annually to help DPHSS to:

- Monitor the incidence and prevalence of HIV/AIDS cases in the jurisdiction;
- Assess HIV infection risk factors and develop effective HIV and STD prevention programs; and,
- Justify necessary federal, territorial, and regional funding to sustain HIV/AIDS prevention, care and surveillance activities.

This profile includes HIV/AIDS data of Guam residents for the period ending December 31, 2012.

HIV Surveillance in Guam

In Guam, HIV/AIDS became a reportable condition in 1985, at which time DPHSS established a surveillance system to track newly diagnosed HIV/AIDS cases.

Standardized case report forms are used by DPHSS HIV/AIDS Surveillance Program to collect demographic information, mode of transmission, clinical and laboratory information, vital statistics, and referrals made for additional services. DPHSS HIV/AIDS Surveillance Program is the only program on the island that collects and monitors HIV/AIDS surveillance data for the jurisdiction. This data is used to drive HIV prevention and care services on the island.

Methods

HIV Surveillance Data

A diagnosis of AIDS and/or HIV is legally reportable in Guam and must be reported to DPHSS within 48 hours in accordance to Title 10 Guam Code Annotated Chapter 3 (Article 3, § 3302, 3303, 3307, 3308) to include suspect cases. Reports of HIV/AIDS cases are provided by various entities including DPHSS STD/HIV Program, DPHSS Clinics and Federally Qualified Community Health Centers (FQCHCs), Guam Memorial Hospital Authority, and private clinics and laboratories. Since July 2011, DPHSS HIV Surveillance Program has been receiving encrypted HIV laboratory data from Diagnostic Laboratory Services (DLS).

HIV surveillance data are maintained within the HIV Surveillance Program of DPHSS. A HIV/AIDS Case Surveillance Report is published annually by the HIV Surveillance Program. The HIV/AIDS Surveillance Program distributes these reports to other DPHSS programs, the Guam HIV Planning Group (HPG), community-based organizations and other stakeholders.

Statistics and trends presented in this report were derived from HIV/AIDS case data reported to DPHSS from 1985 through Dec. 31, 2012. In order to protect the privacy of individuals diagnosed with HIV or AIDS, no client level data will be released in this profile.

HIV Counseling and Testing Data

There are several sites throughout Guam that provide *free* HIV counseling, testing, and referral services (CTRS) to at-risk individuals. These sites include the STD/HIV Program, local public health clinics, WestCare/GUAHAN Project, Guam's only AIDS service organization, and Guam's Alternative Lifestyle Association (GALA), a community-based organization that provides services to the Lesbian Gay Bisexual and Transgendered (LGBT) community.

Counseling and testing data are collected via a standardized Pacific Island Jurisdiction (PIJ) test form and analyzed via Epi Info Statistical Software in collaboration with the CDC Program Evaluation Branch. This data is used to capture the characteristics of those accessing CTR services and to determine if such services are reaching those populations at-risk for HIV infection.

Guam Ryan White HIV/AIDS Program Data

The Guam Ryan White HIV/AIDS Program (RWHAP) provides HIV-related health services and antiretroviral medication to eligible clients infected with HIV/AIDS. Guam receives federal funding through the Health Resources and Service Administration (HRSA) under Part B of the Ryan White HIV/AIDS Treatment Extension Act of 2009. Client-level data is collected to assess the health outcomes of those clients receiving care and treatment through RWHAP.

STD Surveillance Data

The STD/HIV Program provides STD clinical services (including testing and treatment) and HIV counseling and testing services. The program conducts island-wide surveillance to determine STD incidence and trends. In addition, the program conducts partner counseling and referral

services for people infected with HIV, syphilis, chlamydia or gonorrhea to reduce the spread of these diseases.

Viral Hepatitis Surveillance Data

The Immunization Program under DPHSS Bureau of Communicable Disease Control receives reports of hepatitis A, B and C acute and chronic infections from various reporting sources including private clinics and laboratories. A Hepatitis Registry with approximately 3,500 cases is being maintained by the Office of Epidemiology and Research at DPHSS.

Hepatitis C Testing and Hepatitis A and B Vaccination

DPHSS Immunization Program offers: (1) Hepatitis B Surface Antigen (HBsAg) testing for all pregnant women during each pregnancy, (2) post-vaccine serologic screening for HBsAg (Hepatitis B Surface Antigen) and anti-HBsAB (Hepatitis B Surface Antibody) for infants age 9-18 months whom are born to a HBsAg positive mother (upon completion of Hepatitis B vaccine three-dose series); and, (3) HB core AB (Hepatitis B core antibody) to sexual contacts of HBsAg positive perinatal clients.

The Immunization Program established a partnership with the Labor and Delivery Unit at the Guam Memorial Hospital and at the Sagua Managu Birthing Center in Tamuning, Guam to administer the Universal Hepatitis B birth dose to all newborns within their respective facilities. Effective Jan. 3, 2006, Hepatitis B vaccination was included as a required immunization for school enrollment for all students, kindergarten through 12th grade.

Hepatitis B and C are not routine screening tests under the STD/HIV Program within the Bureau of Communicable Disease Control (BCDC) due to the lack of funding. Efforts to address Hepatitis screening to high risk groups are being addressed.

Tuberculosis Data

The TB Control Program provides medical management of latent and active TB cases & directly observed therapy (DOT) for active TB cases. The program conducts island-wide surveillance to determine TB incidence and trends, and provides targeted testing for persons with HIV and diabetes as well as for contacts to active TB cases. The TB Program assesses adequacy and appropriateness of therapy for each patient by reviewing treatment regimen, susceptibility results, adherence and/or response to therapy.

Population Profile of Guam

Population

As the westernmost territory of the United States and the larger and southernmost island in the Marianas Archipelago, Guam was the first Pacific island discovered by the Western world. The island is approximately 30 miles north to south, 5 to 9 miles east to west, and has a total land area of approximately 209 square miles.

Guam is located in the Western Pacific Ocean, at a distance of 3,700 miles southwest of Honolulu, Hawaii and about 1,500 miles east of Manila, Philippines and a similar distance southeast of Tokyo, Japan. Guam serves as a critical crossroads and distribution center within Micronesia and the rest of the Pacific as well as Asia, making it a major travel hub. Guam houses one of the most strategically important U.S. military installations in the Pacific.

Guam's latest official population based on decennial census data released by the U.S. Census Bureau is for the year 2010. Guam's population in 2010 was 159,358 which is an increase of 2.9 percent from its 2000 population of 154,805 people. However, its population growth was significantly less than the 16.3 percent increase that occurred between 1990 and 2000. With a total of 19 villages with the highest concentrations of people living in the central and northern villages.

Demographic Composition

The demographic composition of the local population describes who is living in Guam. The population is broken down by gender, age and race/ethnicity in the following table. At the time of the 2010 U.S. census, the population was nearly split evenly between males (51%) and females (49%). The median age was 29.5 years. Nearly half of the population identified as being *Pacific Islander* (49%), while *Asian* and *Multiple Races* comprised 32% and 9%, respectively.

Table 1: Population Demographics of the General Population

GENDER	Number	Percentage
Total Population	159,358	100.0
Male	81,568	51.2
Female	77,790	48.8
Age		
Median age (years)	29.5	N/A
Race/Ethnicity		
Asian	51,381	32.2
Black/African American	1,540	.97
Pacific Islander	78,582	49.3
White/Caucasian	11,321	7.1
Hispanic	1,201	.75
Multiple Races	14,929	9.4
Other	404	.25

*Note: Due to rounding, totals may not add up to 100%. Source: Guam Statistical Yearbook (2011).

Social Characteristics

Education, marital status, and place of birth provide insight of the social background and interaction of the population of Guam.

Approximately 34% of people aged 25 years and older graduated from high school (or equivalent), while 15% of the population reported having obtained a bachelor's degree and 5% a graduate or professional degree. Of those born in another jurisdiction outside of Guam, approximately 74% were born in Asia and 25% born in Oceania. The table below summarizes these selected social characteristics data from the 2010 Census.

Table 2: Social Characteristics of the General Population

Education of People Aged 25 years and older	Number	Percentage
Total population aged 25 years and older	89,253	100.00
Less than 9 th grade	6,919	7.8
9 th to 12 th grade, no diploma	11,429	12.8
High school graduate, including equivalency	30,176	33.8
Some college, no degree	17,587	19.7
Associates degree	4,963	5.6
Bachelor's degree	13,513	15.1
Graduate or professional degree	4,666	5.2
Marital Status of People Aged 15 years and older		
Total population 15 years and older	116,039	100.0
Never Married	43,795	37.7
Now married, not separated	57,856	49.9
Separated	1,776	1.5
Widowed	5,303	4.6
Divorced	7,309	6.3
Place of Birth of Foreign-Born population		
Total foreign-born population	50062	100.0
Europe	485	1.0
Asia	36772	73.5
China	2133	4.3
Japan	2082	4.2
Korea	2687	5.4
Philippines	29028	58.0
Other Asia	842	1.7
Oceania	12371	24.7
Federated States of Micronesia	10545	21.1
Marshall Islands	232	0.5
Palau	1437	2.9
Other Oceania	157	0.3
Elsewhere	434	0.9

*Note: Due to rounding, totals may not add up to 100%. Source: Guam Statistical Yearbook (2011).

Economic Characteristics

Guam's economic characteristics are summarized in the table below based on 2010 Census data. The median household income was \$39,052 (USD) with 27% of households below the poverty line. More than 5% of households reported having no income.

Table 3: Economic Characteristics of the General Population

Households at Income Level	Number	Percentage
No income	2,512	5.6
Under \$3,000	619	1.4
\$3,000 – 4,999	728	1.6
\$5,000 – 6,999	655	1.5
\$7,000 – 8,999	692	1.5
\$9,000 – 10,999	1,347	3.0
\$11,000 – 12,999	1,128	2.5
\$13,000 – 14,999	1,238	2.8
\$15,000 – 19,999	3,130	7.0
\$20,000 – 29,999	5,242	11.7
\$30,000 – 39,999	5,569	12.5
\$40,000 – 49,999	4,040	9.0
\$50,000 – 59,999	3,567	8.0
\$60,000 – 69,999	3,058	6.8
\$70,000 – 79,999	1,966	4.4
\$80,000 – 89,999	2,439	5.5
\$90,000 – 99,999	1,565	3.5
\$100,000 & Above	5,169	11.6
Total Household Income		
Mean earnings		\$49,263
Median household income		\$39,052
Below Poverty Level		
Individuals	45,785	29%
Households	12,049	27%

*Note: Due to rounding, totals may not add up to 100%. Source: Guam Statistical Yearbook (2011).

Trends of HIV/AIDS in Guam

Cumulative HIV/AIDS Data

HIV/AIDS became a reportable condition in 1985, at which time DPHSS established a surveillance system to track newly diagnosed HIV/AIDS cases. As of December 31, 2012 there have been a cumulative total of 244 HIV infections reported in Guam. The table on the following page summarizes this data and is based on reported HIV/AIDS cases broken down by gender, age, race/ethnicity and transmission category.

Table 4: Profile of the HIV/AIDS Population in Guam, 2008-2012

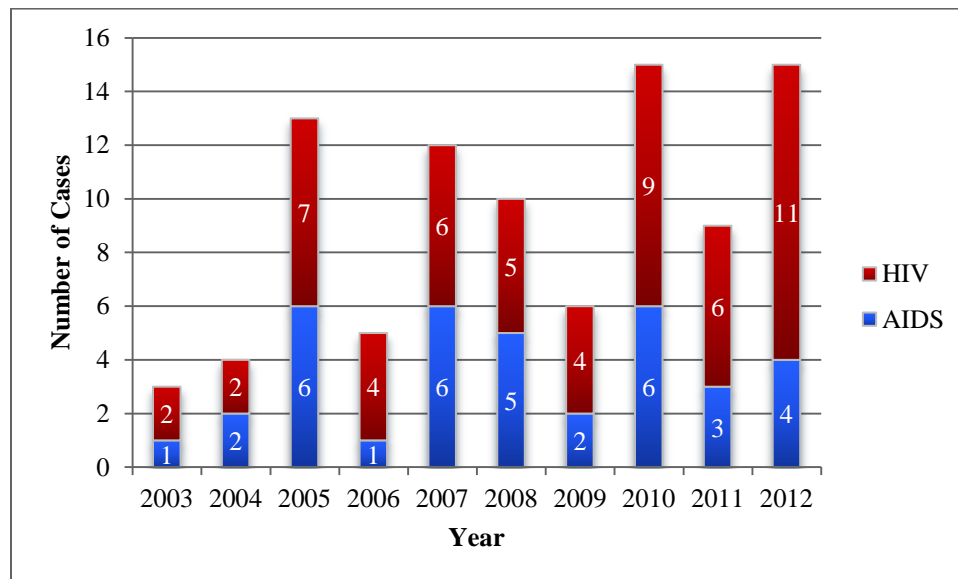
Characteristics	2008		2009		2010		2011		2012		Cumulative HIV/AIDS ³		Persons Living with HIV/AIDS ⁴	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Gender														
Male	4	80%	2	50%	7	78%	3	50%	11	100%	208	85%	50	78%
Female	1	20%	2	50%	2	22%	3	50%	0	0%	36	15%	14	22%
Age⁵														
≤ 12	0	0%	0	0%	0	0%	1	17%	0	0%	3	1%	2	3%
13-19	0	0%	0	0%	0	0%	0	0%	2	18%	8	3%	3	5%
20-29	1	20%	1	25%	1	11%	2	33%	3	27%	71	29%	14	22%
30-39	2	40%	1	25%	5	56%	0	0%	4	36%	103	42%	29	45%
40-49	2	40%	2	50%	3	33%	3	50%	2	18%	50	20%	16	25%
≥ 50	0	0%	0	0%	0	0%	0	0%	0	0%	9	4%	0	0%
Race/Ethnicity														
Asian	0	0%	0	0%	3	33%	0	0%	5	45%	46	19%	9	14%
Black/African American	0	0%	0	0%	0	0%	0	0%	0	0%	8	3%	1	2%
Pacific Islander ⁶	5	100%	4	100%	6	67%	5	83%	3	27%	131	54%	42	66%
White	0	0%	0	0%	0	0%	1	17%	1	9%	43	18%	7	11%
Hispanic	0	0%	0	0%	0	0%	0	0%	0	0%	5	2%	1	2%
Multiple Races	0	0%	0	0%	0	0%	0	0%	2	18%	11	5%	4	6%
Transmission Category														
Male-to-Male Sexual Contact (MSM)	1	20%	1	25%	5	56%	0	0%	9	82%	121	50%	38	59%
Injection Drug Use (IDU)	0	0%	0	0%	0	0%	0	0%	0	0%	9	4%	2	3%
MSM & IDU	1	20%	0	0%	0	0%	0	0%	1	9%	9	4%	2	3%
Heterosexual Contact	3	60%	3	75%	4	44%	5	83%	1	9%	51	21%	18	28%
Perinatal (Mother-to-Child) Contact	0	0%	0	0%	0	0%	1	17%	0	0%	3	1%	2	3%
Other ⁷	0	0%	0	0%	0	0%	0	0%	0	0%	7	3%	0	0%
No Reported Risk (NRR) ⁸	0	0%	0	0%	0	0%	0	0%	0	0%	44	18%	2	3%
TOTAL CASES	5	100%	4	100%	9	100%	6	100%	11	100%	244	100%	64	100%

Note: ¹All data in this report are based on information provided to the Guam Dept. of Public Health & Social Services per Title 10, GCA, Chapter 3; ²This profile includes new (incident) cases for years 2008 – 2012; ³Cumulative HIV/AIDS cases include all cases diagnosed/reported on Guam from 1985 through December 31, 2012; ⁴Persons living with HIV/AIDS include all cases presumed to be alive (includes cases with unknown status but does not include cases out of jurisdiction); ⁵Age at diagnosis; ⁶Total Chamorro cases: 103/42%; total Chuukese cases: 20/8%; ⁷Includes blood transfusion, infusion of clotting factor blood product, and occupational exposure; ⁸Cases with no risk factor or transmission category were reported between 1988 – 2004.

Incidence of HIV/AIDS

Due to Guam's low HIV incidence, trends in HIV/AIDS diagnosis are difficult to interpret. During the past 10 years (2003-2012), 92 cases of HIV/AIDS were diagnosed or reported in Guam. Of the 56 cases of HIV infection, nearly half (45%) were diagnosed with AIDS within 12 months of their HIV diagnosis.

Figure 1: Disease Status of HIV/AIDS Cases Diagnosed, 2003-2012



Source: Guam HIV Surveillance Report (2013).

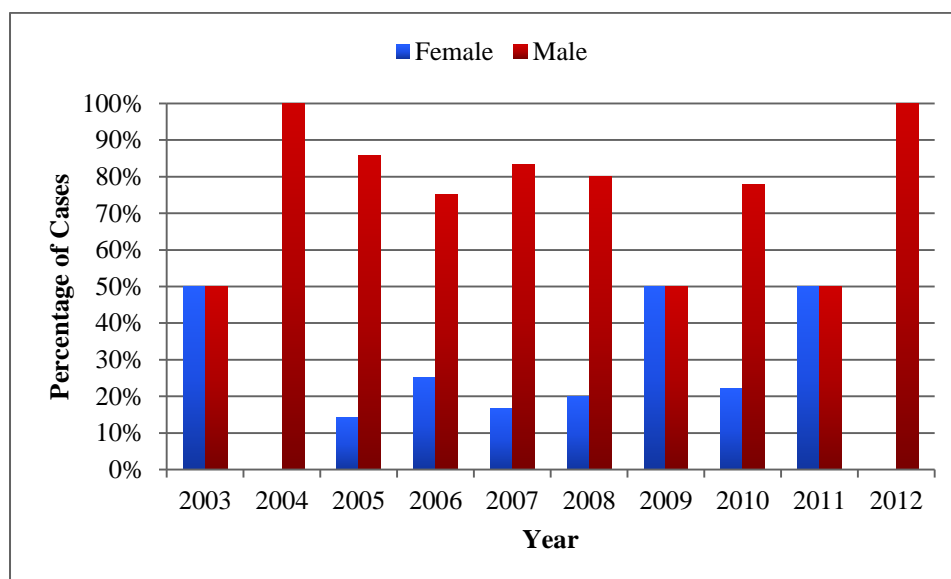
During this same period (2003-2012), Guam had an average rate of 5.78 (per 100,000 population) for HIV/AIDS. When broken down during this period, the HIV (non-AIDS) average rate was slightly higher at 3.52 (per 100,000 population), while the AIDS average rate was at 2.26.

Gender

Over the past decade, there has been a substantial disparity between males and females diagnosed with HIV/AIDS. Of the 244 cases reported to DPHSS since 1985, 208 (85%) of HIV/AIDS cases were among men, 36 (15%) of cases were among women.

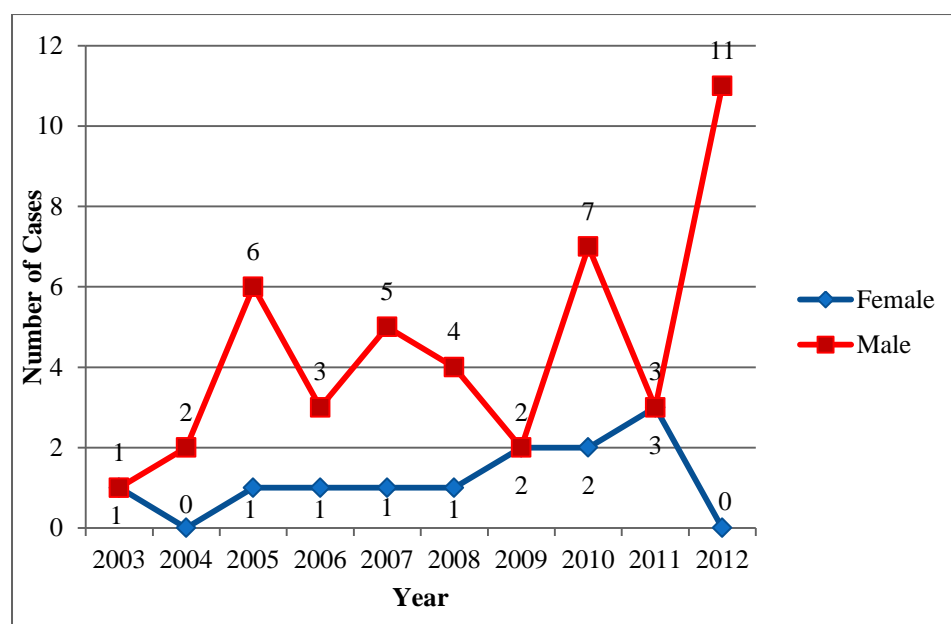
In just the last decade (2003-2012), males comprised 79% of all diagnosed HIV/AIDS cases in Guam. On average, the number females diagnosed with HIV/AIDS cases each year has remained steady at 1 per year compared to 4 males diagnosed per year. In the following, Figure 2 illustrates the percentage of males and females diagnosed between 2003 through 2012 whereas Figure 3 illustrates the gender disparity by way of a line graph of the number of males and females diagnosed during this 10-year period.

Figure 2: Gender of HIV/AIDS Cases Diagnosed, 2003-2012



Source: Guam HIV Surveillance Report (2013).

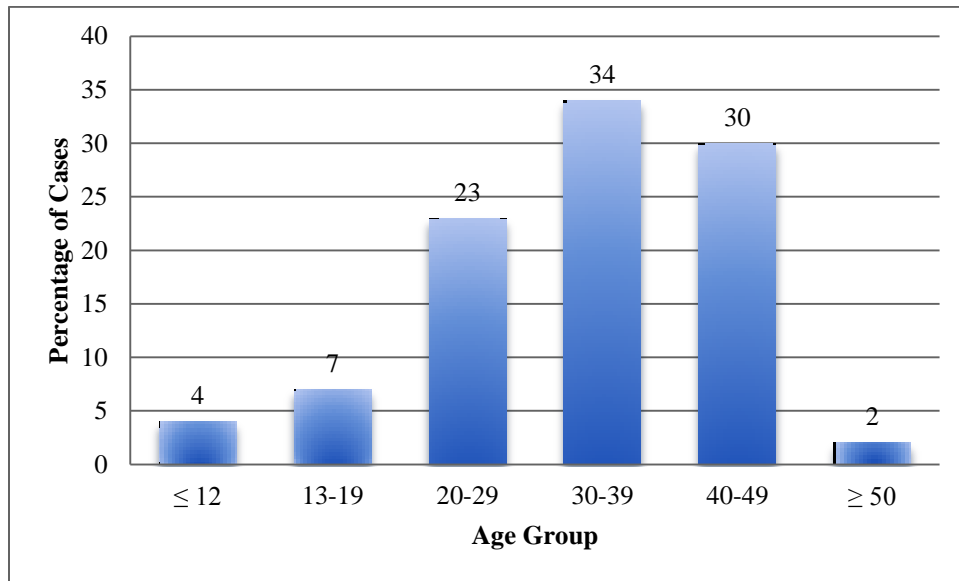
Figure 3: Gender of HIV/AIDS Cases Diagnosed, 2003-2012



Source: Guam HIV Surveillance Report (2013).

Age

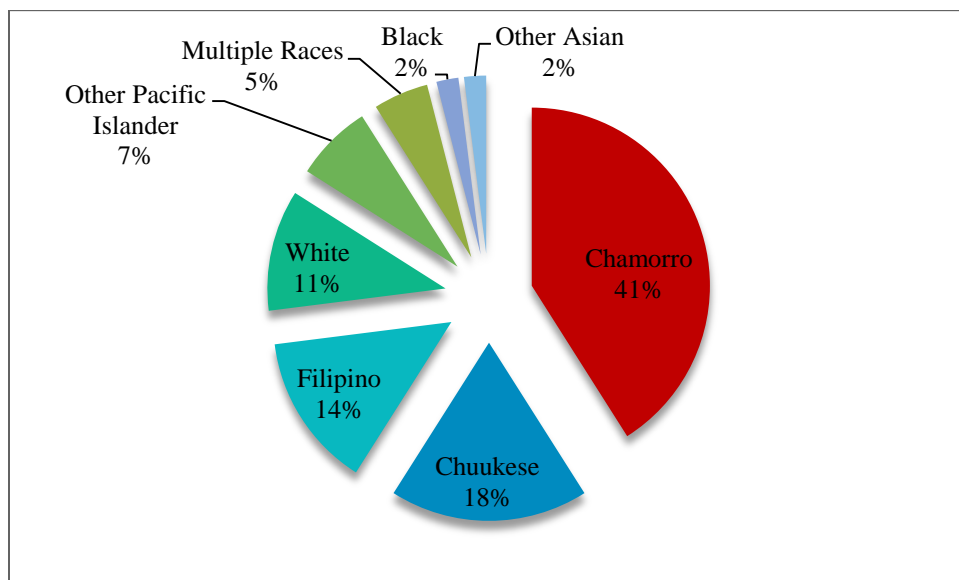
Between 2003-2012, over one-third (34%) of HIV/AIDS cases were diagnosed in the 30-39 year age group followed by the 40-49 year age group (30%) and the 20-29 year age group (23%). It is important to note that of the 11 HIV/AIDS cases diagnosed in 2012, 3 (27%) were among the 20-29 year age group and 2 (18%) were among the 13-19 year age group. Figure 4 illustrates the age groups of HIV/AIDS cases that were diagnosed between 2003 through 2012.

Figure 4: Age Groups of HIV/AIDS Cases Diagnosed, 2003-2012

Source: Guam HIV Surveillance Report (2013).

Race/Ethnicity

Figure 5 (below) illustrates the race/ethnicity of HIV/AIDS cases diagnosed between 2003 and 2012. Pacific Islanders (including Chamorro, Chuukese, and Other Pacific Islanders) accounted for a majority (66%) of the HIV/AIDS cases diagnosed between 2003 to 2012. Among all ethnicities, Chamorros accounted for 41% of these cases, Chuukese (18%), Filipinos (14%), and White (11%).

Figure 5: Race/Ethnicity of HIV/AIDS Cases Diagnosed, 2003-2012

Source: Guam HIV Surveillance Report (2013).

It is important to note that the percentages above are based on the HIV cases diagnosed between 2003 to 2012 and do not necessarily reflect the impact of the HIV/AIDS epidemic among all races and ethnicities for the entire population in Guam.

In order to accurately determine the impact HIV/AIDS among each ethnicity, the *rate* (the proportion of cases in a population during a specified time period) of HIV infections should be examined. The rate for HIV infections diagnosed in 2012 is summarized in the table below and was derived based on 2012 population projections of the 2010 U.S. Census. The rate for Micronesians (excluding Chamorros) was higher than that of other ethnicities, followed by Asian (excluding Filipino).

Table 5: HIV Rates by Ethnicity, 2012

	Chamorro	Filipino	Caucasian	Micronesian (excluding Chamorro)	Black/African American	Asian (excluding Filipino)
Total	2	4	1	3	0	1
Rate	2.9	8.8	8.8	14.8	0.0	10.6

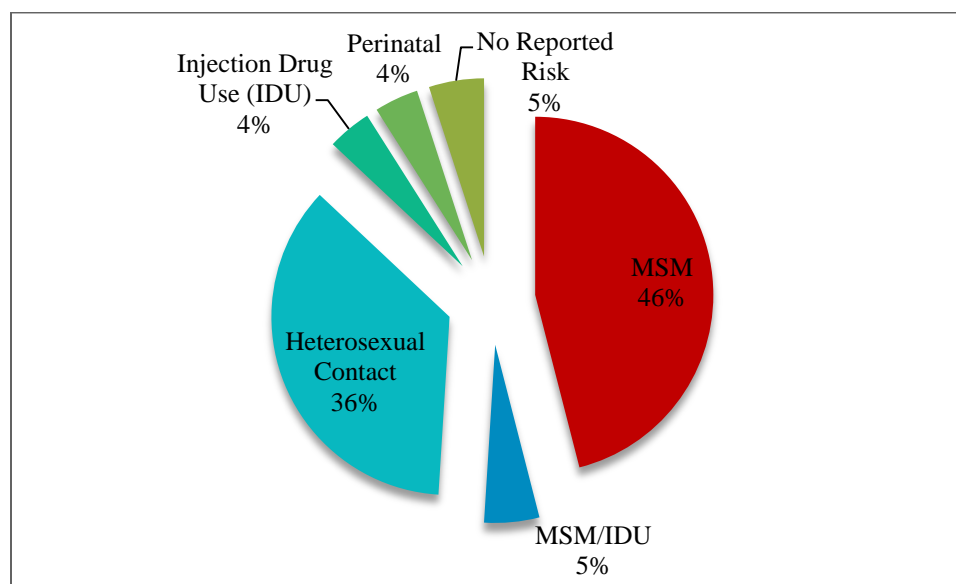
Source: Rate (per 100,000 population) derived from Annual Summary of Notifiable Diseases (2013).

Risk Factors of HIV/AIDS

During 2003 through 2012, male-to-male sexual contact (MSM) accounted for nearly half (46%) of HIV/AIDS cases in Guam and does not include the 5% of HIV/AIDS cases that were classified having both MSM and injection drug use (IDU) as a risk factor. In 2012 alone, MSM (including MSM/IDU) accounted for 10 (91%) out of the 11 HIV/AIDS cases diagnosed in the year.

Heterosexual contact accounted for 36% of HIV infections during this period. Based on local HIV surveillance data, Figure 6 (below) shows the transmission categories of HIV/AIDS cases diagnosed during 2003 through 2012.

Figure 6: Transmission Categories of HIV/AIDS Cases Diagnosed, 2003-2012



Source: Guam HIV Surveillance Report, 2013

Vital Status of HIV/AIDS Cases

Of the 92 HIV/AIDS cases diagnosed between 2003 through 2012, 37 HIV positive individuals were known to be living in Guam as of December 31, 2012. During this period, 11 individuals passed away and 8 have left Guam to another jurisdiction. There is limited information about the status of the remainder of the 92 cases. Figure 7 (below) shows the residency status of HIV/AIDS cases that were reported between 2003 through 2012.

Figure 7: Residency Status of HIV/AIDS Cases Reported, 2003-2012



Source: Guam HIV Surveillance Report (2013).

HIV Counseling and Testing

There are several sites throughout Guam that provide free HIV Counseling, Testing and Referral Services (CTRS) to at-risk individuals. These sites include the STD/HIV Program (SHP), local public health clinics, WestCare/GUAHAN Project, and GALA.

The SHP supports routine and opt-out testing at public-funded sites that include the Northern and Southern Federally Qualified Community Health Centers (FQCHC) in addition to the Family Planning (FP), Maternal Child Health (MCH), Women's Health (WH), Tuberculosis and STD clinics at both the central and northern Community Health Centers. HIV EIA (enzyme immunoassay) 1/2 is offered as a routine test. HIV rapid testing via Alere ClearView Complete HIV 1/2 was implemented on January 2012 and is offered to at-risk individuals, including pregnant women in their third trimester, men who have sex with other men (MSM), and partners to HIV positive individuals.

HIV Rapid Testing

The Centers for Medicare and Medicaid Services (CMS) issued a Clinical Laboratory Improvement Amendments (CLIA) Certificate of Waiver to the SHP which allowed the program to develop and issue a HIV Rapid Testing Guidance to potential providers and healthcare settings and implement HIV rapid testing at selected venues. Under the umbrella of WestCare Pacific Islands, GUAHAN Project (Guam's only AIDS service organization) became the first community-based organization to be established as a CLIA-waived HIV rapid testing site in December 2012 to provide HIV counseling and testing services. Guam's Alternative Lifestyle Association (GALA) has made progress to implement HIV rapid testing, and as of July 2013 HIV testing is being offered to MSM and members of the local LGBT community.

Counselor Certification

Counselors are certified via a STD/HIV Prevention Counseling, Testing and Referral Services process facilitated by the SHP. To become fully certified, the prospective counselor must attend an approved CDC STD/HIV Client-Centered course; attend training on how to complete the HIV testing form; and, complete three hours of observation by SHP staff or another certified counselor. Upon completion of these requisite components, a certification letter is signed by DPHSS Director and is presented to the newly certified counselor.

In addition to the CTRS trainings, SHP staff also participate in CDC Disease Intervention Specialist (DIS) trainings provided by CDC-funded capacity-building assistance providers.

Testing in healthcare and non-healthcare settings

In 2012, HIV testing was conducted at the following locations designated as *healthcare* settings:

- Central STD Clinic and HIV CTRS site (Mangilao)
- Northern STD Clinic and HIV CTRS site (Satellite Office in Dededo)

- Maternal Child Health Clinic
- Women's Clinic
- Family Planning Clinic
- Tuberculosis Clinic
- Northern/Southern Regional Community Health Centers (N/SRCHC)

In addition, HIV testing was conducted at the following locations designated as *non-healthcare* settings in 2012:

- University of Guam Student Health Services Office
- Chuukese Outreach venues (Stepping Stones Love Life Center)
- New Beginnings (Drug Recovery Program)/Department of Mental Health and Substance Abuse
- Department of Corrections Hagatna Lock-Up Facility
- WestCare Pacific Islands sites (GUAHAN Project, Juvenile Probation, Sagan Mami)
- Guam's Alternative Lifestyle Association

In 2012, there were a total of 2680 test events carried out with seven (7) newly diagnosed HIV cases from the STD/HIV Program at DPHSS (the remaining four cases were diagnosed at private clinics). Of the 2680 test events, most were carried out by the STD/HIV Program (1160 test events) and the Prenatal OBGYN Clinics (921 test events).

The table below summarizes the number of test events at healthcare and non-healthcare settings in 2012. It is important to note that these numbers are not inclusive of HIV testing done island-wide by private clinics and laboratories.

Table 6: Test Events and Results in Healthcare and non-Healthcare Settings, 2012

	Number of Participating Sites	Number of HIV Test Events	Newly-Diagnosed Positives
Healthcare Sites			
Prenatal/OBGYN Clinic	3	921	0
TB Clinic	1	48	0
Family Planning	3	11	0
Community Health Clinic	6	332	0
DPHSS HIV/STD Program	1	1160	7
Non-Healthcare Sites			
Community Setting-AIDS Service Organization, non-Clinical	1	87	0
Other Non-healthcare Settings	4	121	0
Total	19	2680	7

Note: This table does not include the four (4) HIV positive cases from local private clinics and laboratories. Source: PS12-1201 Annual Progress Report (2013).

Risk Behaviors

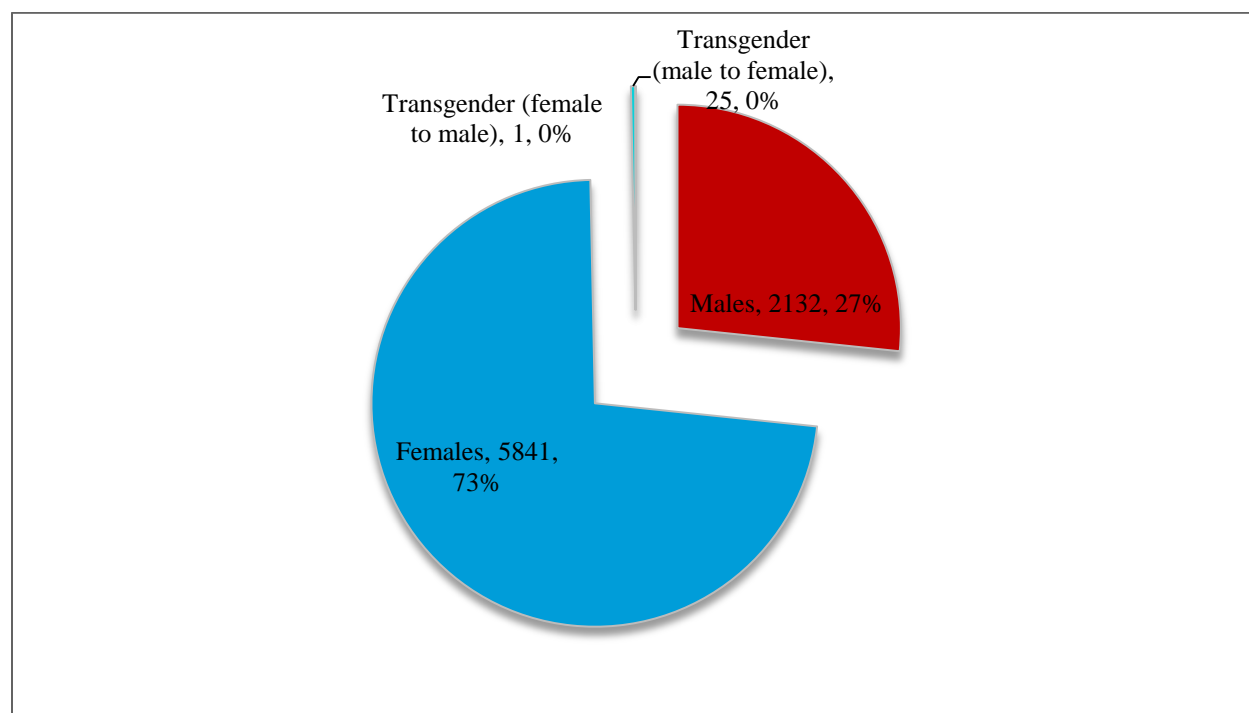
One of the goals of the National HIV/AIDS Strategy (NHAS) is to reduce the number of persons who become infected with HIV. Behaviors such as sexual intercourse without the use of a condom, intravenous drug use, and drug and alcohol use during sex, among others, *increase* an individual's chances of becoming infected with HIV and other STDs. Thus, in order to reduce the number of new infections, it is important to understand the risk behaviors that individuals are engaging in.

Reported Risk Behaviors among Individuals Receiving HIV Testing Services

The pie graph below illustrates the gender of those tested at the sites in Table 6 (above) that provide free HIV counseling, testing and referral services. This data was derived from SHP testing information from the standardized Pacific Island Jurisdiction (PIJ) test form and was analyzed via Epi Info Statistical Software. In this section of this Epi Profile, risk behaviors are highlighted for each gender.

Figure 8: Gender of Individuals Tested, 2010-2012

Number (N) = 7,999 Tests



Source: DPHSS STD/HIV Program data

Table 7 provides a summary on the risk factors among individuals who were tested between 2010 and 2012. It is important to note that one client may have reported more than one risk behavior; therefore, percentages in the last column of Table 7 was generated from the number of responses among *all* clients and will not add up to 100%.

Table 7: Risk Factors among Individuals Tested, 2010-2012 (N = 7,999)

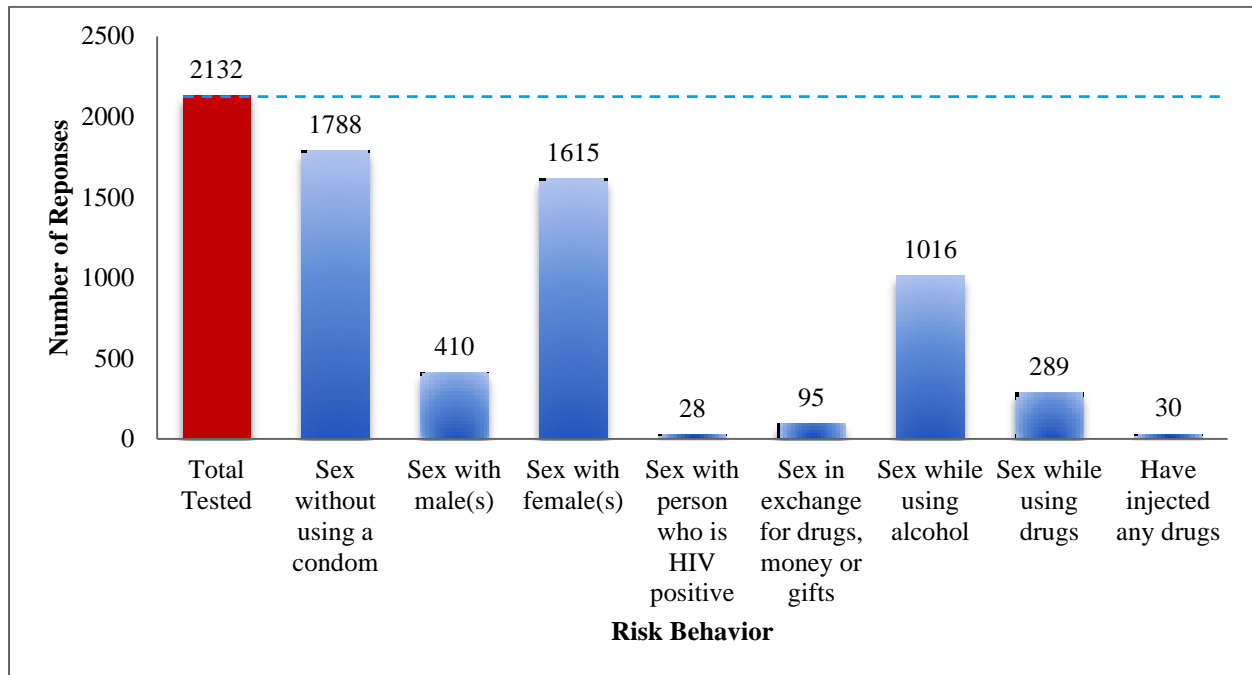
	TOTAL	Males	Females	Transgender (male to female)	Transgender (female to male)	% of responses
Clients Tested	7999	2132	5841	25	1	n/a
Risk Behavior						
Sex without using a condom	6284	1788	4472	23	1	79
Sex with male(s)	5472	410	5036	25	1	68
Sex with female(s)	1809	1615	193	1	0	23
Sex with person who is HIV positive	52	28	24	0	0	1
Sex in exchange for drugs, money or gifts	135	95	37	3	0	2
Sex while using alcohol	1956	1016	930	10	0	25
Sex while using drugs	494	289	203	2	0	6
Have injected any drugs	83	30	48	4	1	1

Source: DPHSS STD/HIV Program data.

The following bar graphs illustrate the number of responses reported by clients regarding their risk behavior(s) by gender. Again, clients may have indicated more than one risk behavior.

Risk Behaviors among Male Clients

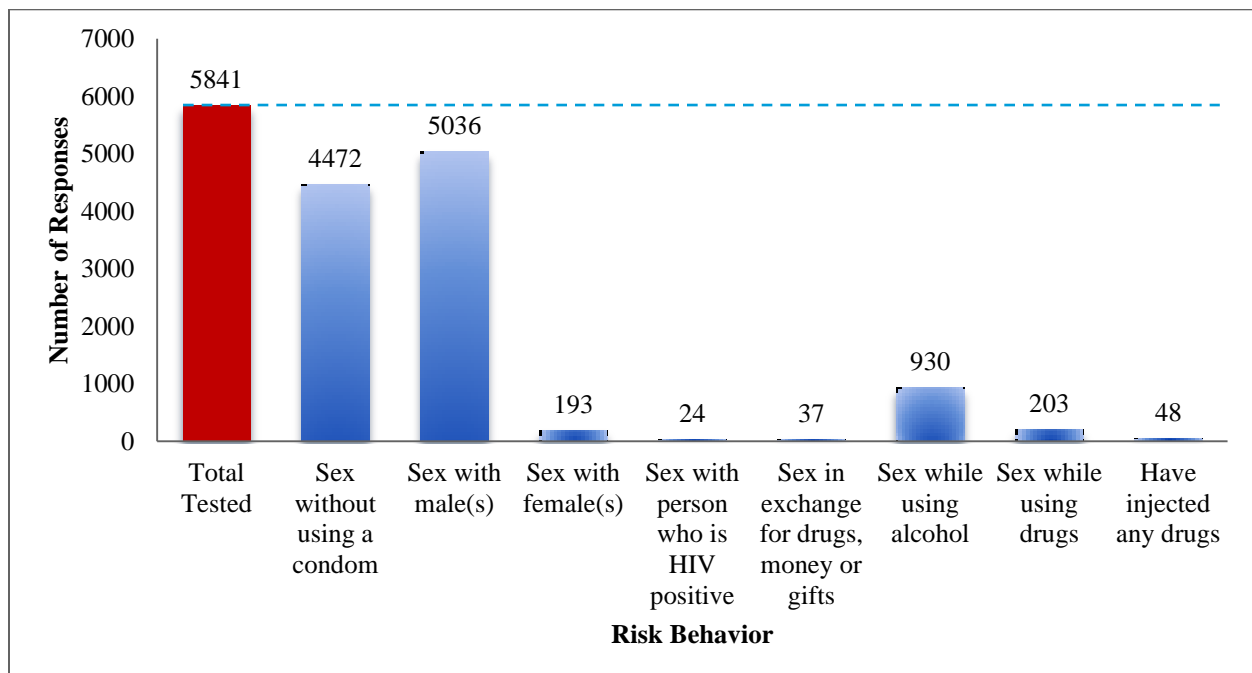
Of 2,132 male clients tested between 2010 and 2012, 1,788 (84%) reported having had sex without using a condom within the past 12 months, followed by 1,615 (76%) who reported having sex with female(s) and 1,016 (48%) reported having sex while using alcohol within the past 12 months. Figure 9 illustrates the risk behaviors among male clients tested between 2010 and 2012.

Figure 9: Risk Behaviors among Males Tested, 2010-2012 (n = 2,132)

Source: DPHSS STD/HIV Program data. Note that some clients may have reported more than one risk behavior.

Risk Behaviors among Female Clients

Of the 5,841 females tested between 2010 and 2012, 5,036 (86%) reported having sex with male(s) within the past 12 months, followed by 4,472 (77%) having sex without using a condom, and 930 (16%) reported having sex while using alcohol within the past 12 months. Figure 10 illustrates the risk behaviors among female clients tested between 2010 and 2012.

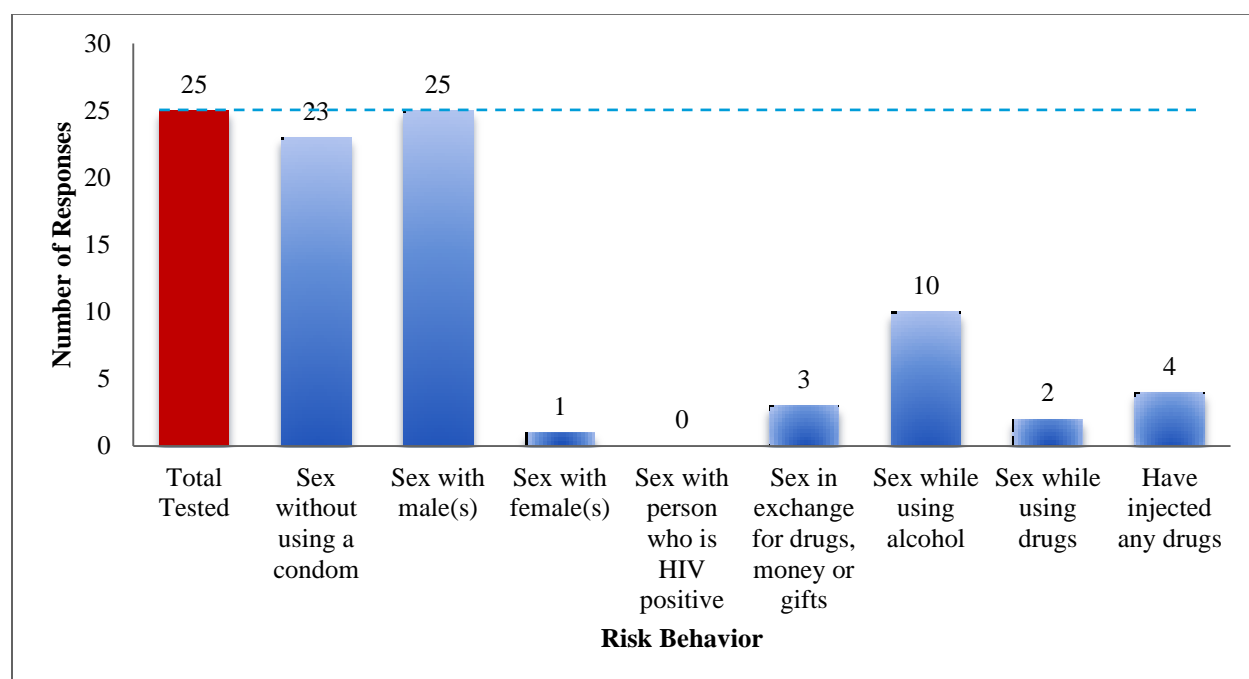
Figure 10: Risk Behaviors among Females Tested, 2010-2012 (n = 5,481)

Source: DPHSS STD/HIV Program data. Note that some clients may have reported more than one risk behavior.

Risk Behaviors among Transgender Clients

Of the 25 transgender clients tested between 2010 and 2012, 25 (100%) responded that within the past 12 months they had sex with male(s), 23 (92%) reported having sex without using a condom, and 10 (40%) responded having sex while using alcohol. Although it is not shown in the bar graph above, one transgender (female to male) reported having sex without using a condom, sex with male(s) and injection drug use in the past 12 months.

Figure 11: Risk Behaviors among Transgender (male to female) Tested, 2010-2012 (n = 25)



Source: DPHSS STD/HIV Program data. Note that some clients may have reported more than one risk behavior.

Other Sources of Risk Behavior Data

In addition to testing level data from these sites, there are other data sources that collect information about risk behaviors for of the population in Guam. Such sources include the Youth Risk Behavior Surveillance System and the Behavioral Risk Factor Surveillance Survey.

Youth Risk Behavior Surveillance System (YRBS)

The Guam Department of Education receives funding from CDC's Division of Adolescent and School Health to collect and report YRBS and School Health Profiles data. Such data include sexual behavior and drug and alcohol use. For more information about YRBS data for Guam, visit the CDC's website at <http://www.cdc.gov/healthyyouth/yrbs/index.htm>.

Behavioral Risk Factor Surveillance Survey (BRFSS)

The BRFSS utilizes a telephone survey to collect various data including the level of respondents' knowledge of HIV/AIDS and how to prevent infection. Results on a BRFSS survey question "Have you ever been tested for HIV?" was included in 2007-2010 1st Guam BRFSS Annual Report. For more information on this question and other data for Guam, visit the CDC's website <http://www.cdc.gov/brfss/>.

Guam Ryan White HIV/AIDS Program

DPHSS receives RWHAP (Part B) and AIDS Drugs Assistance Program (ADAP) funds, and administers these programs through the Bureau of Communicable Disease Control (BCDC).

The Guam Ryan White HIV/AIDS Program (RWHAP) provides HIV-related health services and antiretroviral medication to eligible HIV/AIDS clients. Guam receives federal funding through the Health Resources and Service Administration (HRSA) under Part B of the Ryan White HIV/AIDS Treatment Extension Act of 2009. Client-level data are collected to assess the health outcomes of those clients receiving care and treatment through RWHAP.

The three core services that are provided by RWHAP are:

1. Medical Case Management;
2. AIDS Drug Assistance Program (ADAP); and,
3. Outpatient/Ambulatory Health Services.

In addition to these core services, RWHAP also provides support services including Medical transportation service, a food voucher program, and Support Group for HIV positive individuals.

Sexually Transmitted Diseases other than HIV/AIDS

Chlamydia, gonorrhea and syphilis are some of the common STDs in Guam. Therefore, preventing and treating STDs is important because individuals who are infected with STDs are at least two to five times more likely to acquire HIV infection through sexual contact than uninfected individuals.

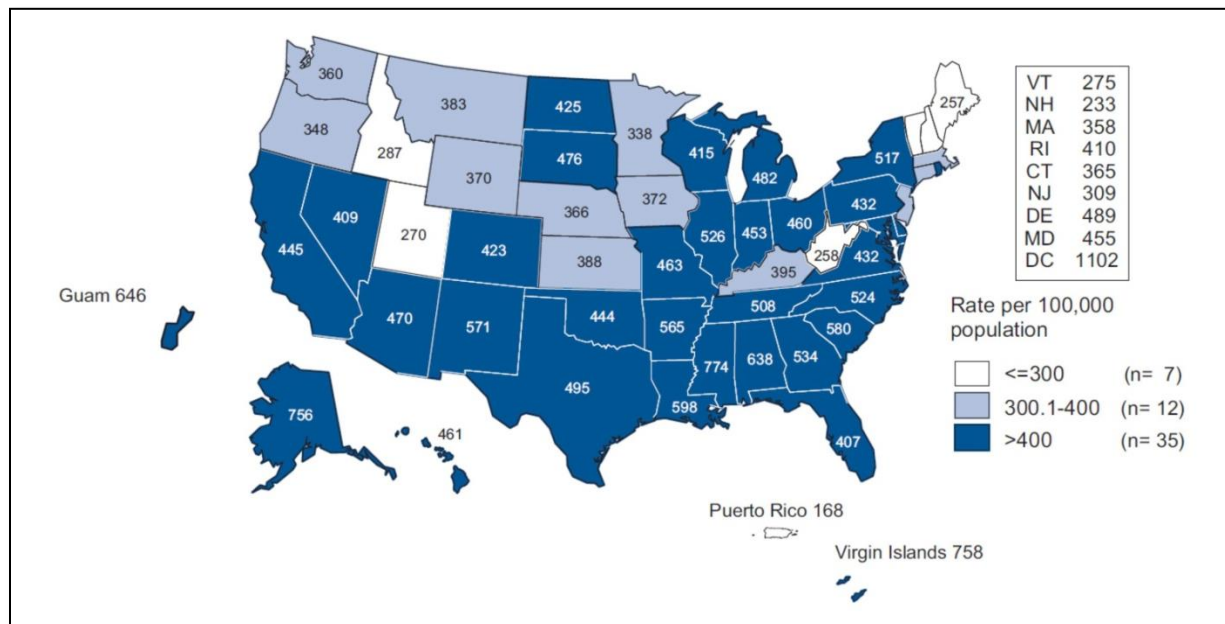
All STD cases reported to Guam DPHSS were laboratory-based diagnoses from public, private and military clinics and laboratories. These entities are mandated to follow Guam Reporting Law Title 10 Chapter 3 and the Guam Code Annotated (GCA) Official Reportable Disease List for Guam.

Chlamydia

Chlamydia trachomatis (CT) infection rates have significantly increased over the past few years. In particular, CT rates in Guam have been markedly higher than the U.S. national average during recent years. From 2010 to 2012, Guam's CT rate increased from 563.9 to 646.0 (per 100,000 population) and has exceeded the U.S. national rate consistently over this period, ranking Guam as having one of the highest CT rates among the states and outlying areas of the U.S.

In 2011, the local CT rate ranked Guam as having the 8th highest CT rate in the nation. In 2012, Guam's chlamydia rate rose even further above the national average to 646.0 (per 100,000 population) ranking the island as having the 5th highest CT rate among the states and outlying areas (see Figure 12, below).

Figure 12: Chlamydia Rates by State and Outlying Areas of the U.S., 2012



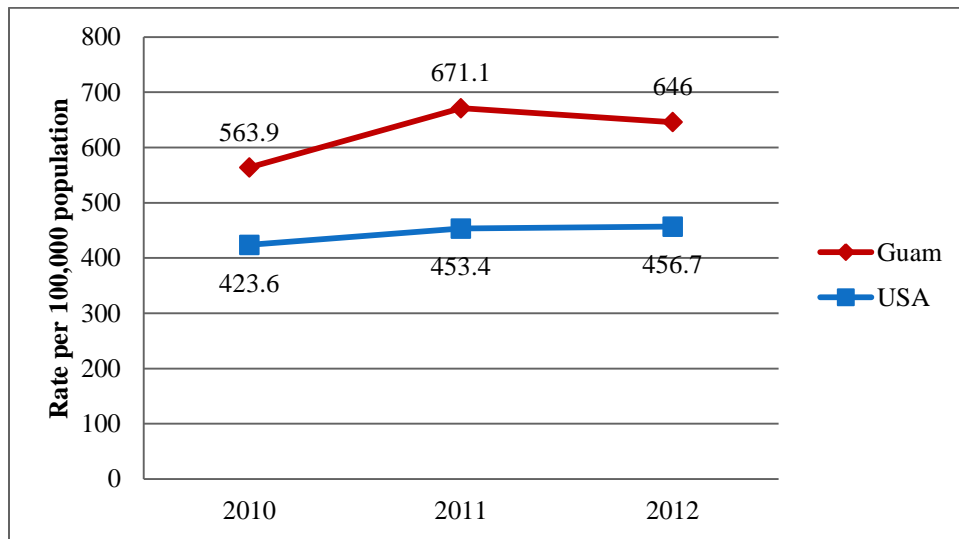
Source: CDC STD Surveillance Report (2014).

Table 8: Chlamydia Reported Cases, 2010-2012

	GUAM		U.S.
YEAR	CASES	RATE	RATE
2010	899	563.9	423.6
2011	1,071	671.1	453.4
2012	1,031	646.0	456.7

Source: CDC STD Surveillance Report (2014).

The following line graph illustrates the CT rate of Guam and the U.S. outlined in Table 8. The figure highlights the higher rate for Guam compared to the U.S. rate over the past few years.

Figure 13: Comparison of Guam and U.S. CT Rates, 2010-2012

Source: CDC STD Surveillance Report (2014).

Among other factors, these higher rates for the past few years may be due to an increase in the number of tests administered as a result of the implementation of the CT/NG Disease Burden Assessment that began on October 2009 and concluded October 2013. This CT/NG assessment will be discussed in detail later in this profile.

Chlamydia Infections by Gender

Of the 1,031 CT cases in 2012, a majority (approximately 70%) were among females while 30% of these cases were among males. Furthermore, as shown in the following table the CT rate among females (921.9) was nearly two-and-a-half times greater than that of males (375.8).

Table 9: Chlamydia Rates by Gender, 2012

	Male	Female
Total	305	726
Rate	375.8	921.9

Source: Rate (per 100,000 population) derived from Annual Summary of Notifiable Diseases (2013).

Chlamydia Infections by Age Group

As shown in the table below, the CT rate was highest among the 20-24 year age group at 3387.6 (per 100,000 population), followed by 25-29 (1886.6) and 15-19 (1338.5) age groups.

Table 10: Chlamydia Rates by Age Group, 2012

	0-4	5-9	10-14	15-19	20-24	25-29	30-39	40-49	50-64	65+
Total	0	0	3	188	437	213	135	38	17	0
Rate	0	0	20.1	1338.5	3387.6	1886.6	659.1	172.7	71.3	0

Source: Rate (per 100,000 population) derived from Annual Summary of Notifiable Diseases (2013).

Chlamydia Infections by Ethnicity

Table 11 provides information regarding CT rates in 2012 by ethnicity. The table illustrates that the CT rate for Black/African Americans is disproportionately higher than that of all other groups.

Table 11: Chlamydia Rates by Ethnicity, 2012

	Chamorro	Filipino	Caucasian	Micronesian (excluding Chamorro)	Black/African American	Asian (excluding Filipino)
Total	372	119	68	263	38	17
Rate	536.5	262.3	598.6	1295.8	2459.5	179.5

Source: Rate (per 100,000 population) derived from Annual Summary of Notifiable Diseases (2013).

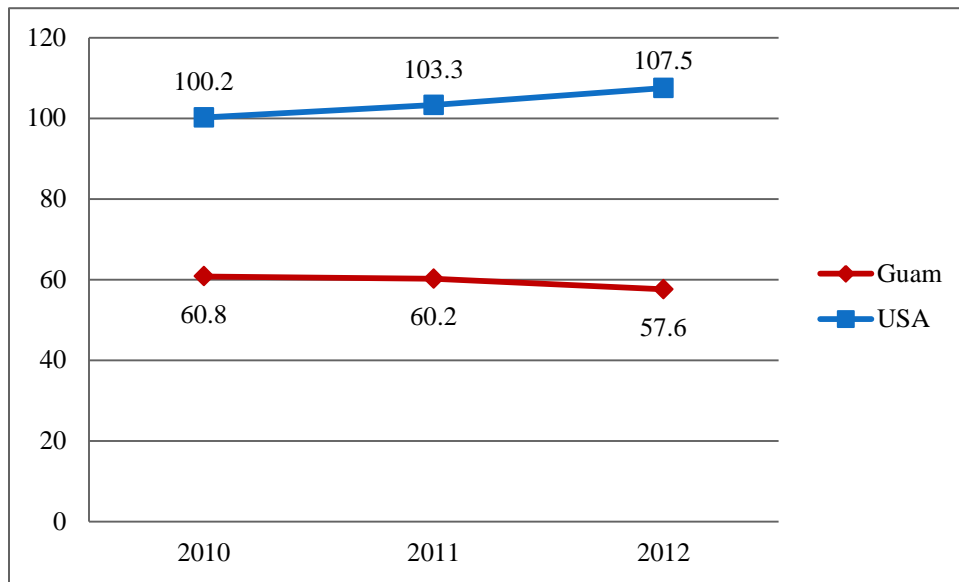
Gonorrhea

Rates of *Neisseria gonorrhea* (NG) infection have remained nearly stable during the past few years from 60.8 (per 100,000 population) in 2010 to 57.6 in 2012. However, Guam's NG rate has not exceeded the national rate, and has averaged more than half the U.S. national rate. Table 12 shows a comparison between the NG rate in Guam and the U.S. from 2010 to 2012. The line graph in Figure 14 illustrates the Guam and U.S. NG rates that are outlined in Table 12.

Table 12: Gonorrhea Reported Cases, 2010-2012

	Guam		U.S.
Year	Cases	Rate	Rate
2010	97	60.8	100.2
2011	96	60.2	103.3
2012	92	57.6	107.5

Source: CDC STD Surveillance Report (2014).

Figure 14: Comparison of Guam and U.S. NG Rates, 2010-2012

Source: CDC STD Surveillance Report (2014).

Gonorrhea Infections by Gender

In 2012, with respect to gender, NG infections were evenly split among males and females (each at approximately 50% of total NG infections). The table below shows that the rate among females (58.4) was slightly higher than that of males (56.7).

Table 13: Gonorrhea Rates by Gender, 2012

	Male	Female
Total	46	46
Rate	56.7	58.4

Source: Rate (per 100,000 population) derived from Annual Summary of Notifiable Diseases (2013).

Gonorrhea Infections by Age Group

As the table below illustrates, the NG rate in 2012 was highest among the 20-24 year age group (271.3), followed by the 25-29 (221.4) and 15-19 (99.7) age groups. This trend among age groups is similar to that of CT infections in 2012.

Table 14: Gonorrhea Rates by Age Group, 2012

	0-4	5-9	10-14	15-19	20-24	25-29	30-39	40-49	50-64	65+
Total	0	0	1	14	35	25	9	7	1	0
Rate	0	0	6.7	99.7	271.3	221.4	43.9	31.8	4.2	0

Source: Rate (per 100,000 population) derived from Annual Summary of Notifiable Diseases (2013).

Gonorrhea Infections by Ethnicity

As was seen in CT infections, in 2012 the NG rate was disproportionately higher among Black/African Americans at 517.8 (per 100,000 population) than compared to other groups.

Table 15: Gonorrhea Rates by Ethnicity, 2012

	Chamorro	Filipino	Caucasian	Micronesian (excluding Chamorro)	Black/African American	Asian (excluding Filipino)
Total	26	9	8	26	8	0
Rate	37.5	19.8	70.4	128.1	517.8	0.0

Source: Rate (per 100,000 population) derived from Annual Summary of Notifiable Diseases (2013).

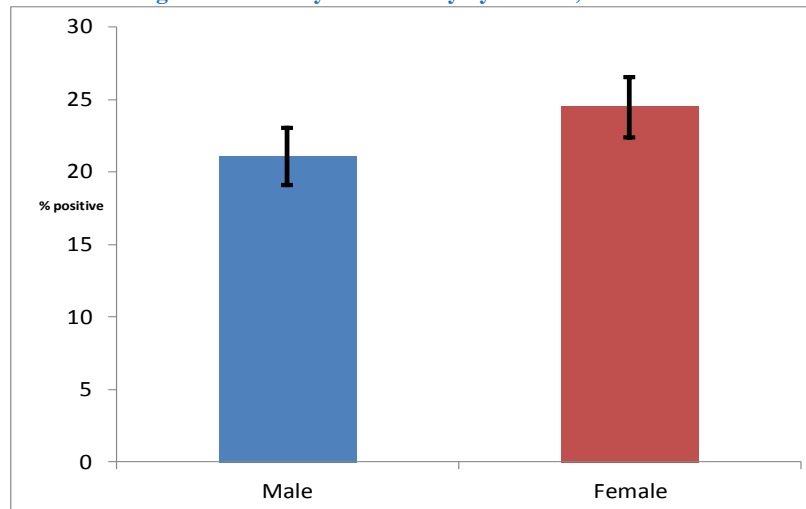
CDC/SHP Chlamydia and Gonorrhea Burden Assessment

In October 2009, the STD/HIV Program (SHP) in consultation with the Centers for Disease Control and Prevention (CDC) Medical Epidemiologist, Laboratorian and Project Officer established Gonorrhea (NG) and Chlamydia (CT) expanded screenings using STD Self-Collection Kits provided by CDC to determine the CT and NG prevalence within the jurisdiction.

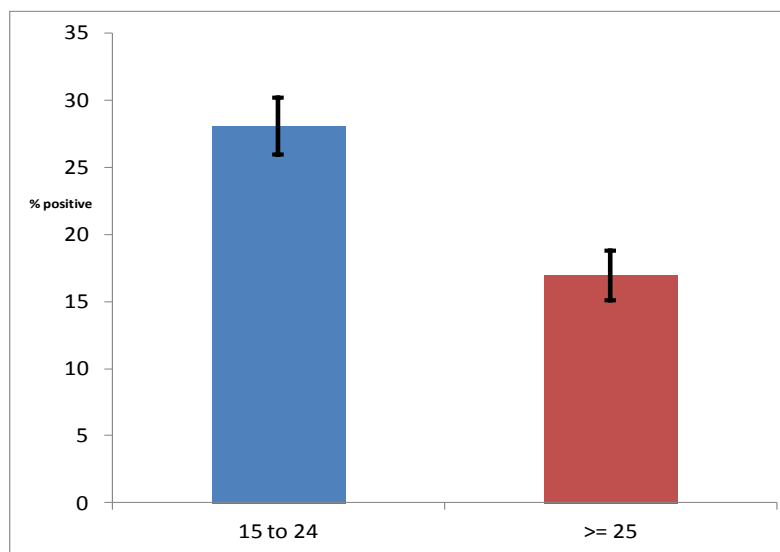
In summary, the CT prevalence was slightly higher in females (24%) than in males (21%) with a total prevalence rate of approximately 23% with the highest prevalence among the 15-19 and 20-24 year age groups. The NG prevalence was at approximately 3% for both females and males during this assessment.

There were no significant gender differences or differences in positivity over time were observed during this project period. However, age was a significant risk factor as CT infections among youth (15-24 years of age) had a positivity of 28% compared to 17% in those clients 25 years of age or older (see Figure 16). The data in Figure 15 and

Figure 16 summarize CT positivity from October 2009 to October 2012 by gender and age group, respectively.

Figure 15: Chlamydia Positivity by Gender, 2009-2012

Source: STD Burden Report (2012).

Figure 16: Chlamydia Positivity by Age Group, 2009-2012

Source: STD Burden Report (2012).

Syphilis

The rates of infectious (Primary and Secondary) syphilis have also increased during the past few years. Between 2010 through 2012, the rate increased drastically from 0.6 to 3.8 (per 100,000 population). This increase brought Guam's rate closer to the national rate which has remained nearly stable during this same period at 4.5 to 5.0 (per 100,000 population). Table 16 compares the combined rates of primary and secondary syphilis between Guam and the U.S.

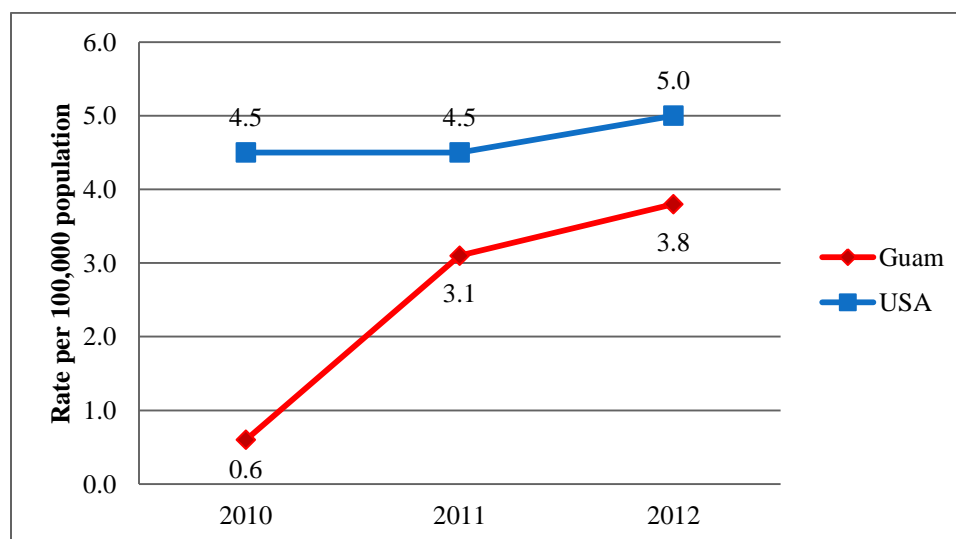
Table 16: Primary and Secondary Syphilis Reported Cases, 2010-2012

	Guam		U.S.
Year	Cases	Rate	Rate
2010	1	0.6	4.5
2011	5	3.1	4.5
2012	6	3.8	5.0

Source: CDC STD Surveillance Report (2014).

The following figure shows the syphilis rates between Guam and the U.S. and illustrates the increasing trend of Guam's rate as it approaches the U.S. rate.

Figure 17: Comparison of Guam and U.S. Primary and Secondary Syphilis Rates, 2010-2012



Source: CDC STD Surveillance Report (2014).

Primary and Secondary Syphilis Infections by Gender

In 2012, Guam had sex (6) reported cases of Primary or Secondary Syphilis, 5 (83%) were among males while the remaining 1 (17%) was female. Thus, during this year the rate of infectious syphilis was nearly five times that among males versus females.

Table 17: Primary and Secondary Syphilis Rates by Gender, 2012

	Male	Female
Total	5	1
Rate	6.2	1.3

Source: Rate (per 100,000 population) derived from Annual Summary of Notifiable Diseases (2013).

Primary and Secondary Syphilis Infections by Age Group

The rate of infectious syphilis was highest among the 20-24 year age group (23.3), followed by the 40-49 (9.1) and 15-19 (7.1) age groups.

Table 18: Primary and Secondary Syphilis Rates by Age Group, 2012

	0-4	5-9	10-14	15-19	20-24	25-29	30-39	40-49	50-64	65+
Total	0	0	0	1	3	0	0	2	0	0
Rate	0	0	0	7.1	23.3	0	0	9.1	0	0

Source: Rate (per 100,000 population) derived from Annual Summary of Notifiable Diseases (2013).

Primary and Secondary Syphilis Infections by Ethnicity

The table below compares the rate of Primary and Secondary Syphilis in 2012 by ethnicity. The table illustrates the disproportionate rate of infectious syphilis among Black/African Americans (129.4) compared to other groups.

Table 19: Infectious Syphilis Rates by Ethnicity, 2012

	Chamorro	Filipino	Caucasian	Micronesian (excluding Chamorro)	Black/African American	Asian (excluding Filipino)
Total	2	0	1	1	2	0
Rate	2.9	0	8.8	4.9	129.4	0

Source: Rate (per 100,000 population) derived from Annual Summary of Notifiable Diseases (2013).

Tuberculosis

Tuberculosis (TB) is a disease caused by the bacterium *Mycobacterium tuberculosis*. It is spread through the air from one person to another when a person with *active* TB disease coughs, sneezes, talks, or sings. Although Guam's TB rate has declined during the past few years, the rate has consistently exceeded the rates of the U.S. mainland and Hawaii over the past several years. As one of the world's deadliest diseases, TB is a leading killer of people who are infected with HIV.

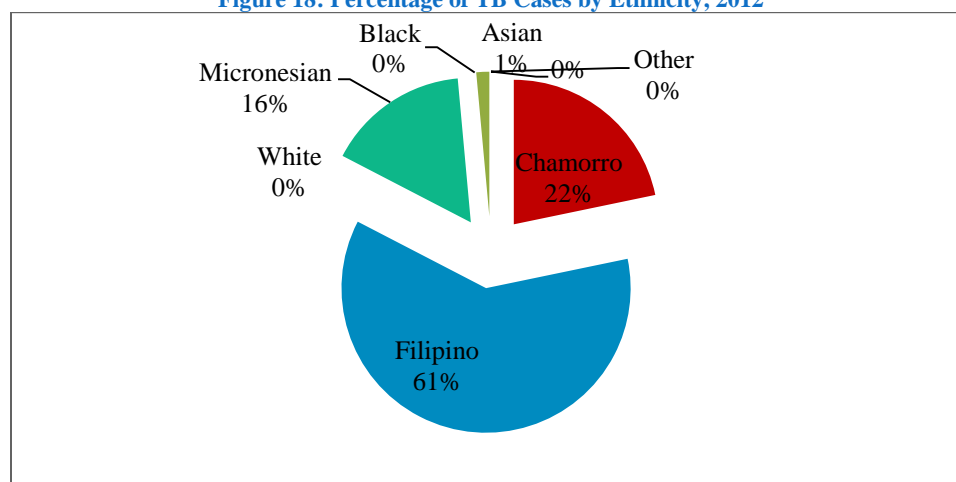
In 2009, the TB rate peaked at its highest level since 1997 when it reached 73.8 (per 100,000 population). In 2010, Guam's case rate of TB per 100,000 population was 64.0 while in 2011 the rate was 48.9. When compared to the U.S. rate, it is apparent that Guam's TB rates are markedly higher at 14 to 18 times the national average during this period. Table 20 compares the TB case rates between the U.S., Hawaii and Guam from 2010 through 2012.

Table 20: Comparison of TB Case Rates: U.S., Hawaii, and Guam, 2010-2012

	2010	2011	2012
U.S.	3.6	3.4	3.2
Hawaii	8.4	8.9	8.4
Guam	64.0	48.9	42.5

Source: Reported Tuberculosis in the United States (2013).

In 2011, with respect to age and ethnicity, the average age of new TB cases among Chamorros (the native people of Guam) was 50.5 years, Filipinos 43.2 years and among other Micronesians (excluding Chamorros) was 27.4 years. In 2012, 23.2% of TB cases on Guam were among the 0-14 year age group. Furthermore, Filipinos accounted for 61% of TB cases in 2012, which is much higher than for Chamorros (22%) and Micronesians (16%). Figure 18 illustrates the percentage of TB cases by ethnicity for 2012.

Figure 18: Percentage of TB Cases by Ethnicity, 2012

Source: Annual Summary of Notifiable Diseases (2013).

Viral Hepatitis

Hepatitis is the inflammation of the liver and is caused by a variety of factors including viruses. The Hepatitis B virus (HBV) is more commonly transmitted via high-risk sexual activities, whereas the Hepatitis C Virus (HCV) is transmitted through the sharing of HCV contaminated needles.

Individuals with HIV/AIDS are frequently co-infected with HBV and HCV since the risk factors for infection are similar between these infections. HIV positive individuals who are co-infected with HBV are at risk of developing chronic HBV infection and liver complications. Those individuals co-infected with HCV are at greater risk of rapid liver damage than HCV alone.

Guam's viral hepatitis statistics are derived primarily from laboratory reports rather than from clinical diagnoses by health care providers. Cases are recorded if they have not been previously entered in a viral hepatitis registry initiated in 1980 and maintained by DPHSS Office of Epidemiology and Research. These cases generally do not represent recent acute infections and the age distribution of hepatitis B and C cases supports this conclusion. An increase in renal dialysis procedures on Guam in recent years has occasioned an increase in testing for viral hepatitis and a consequent increase in positive serologic reports for viral hepatitis.

Hepatitis B

In the U.S., the number of acute cases of HBV decreased overall by 29%, with 4,713 cases in 2006 to 3,350 cases in 2010.

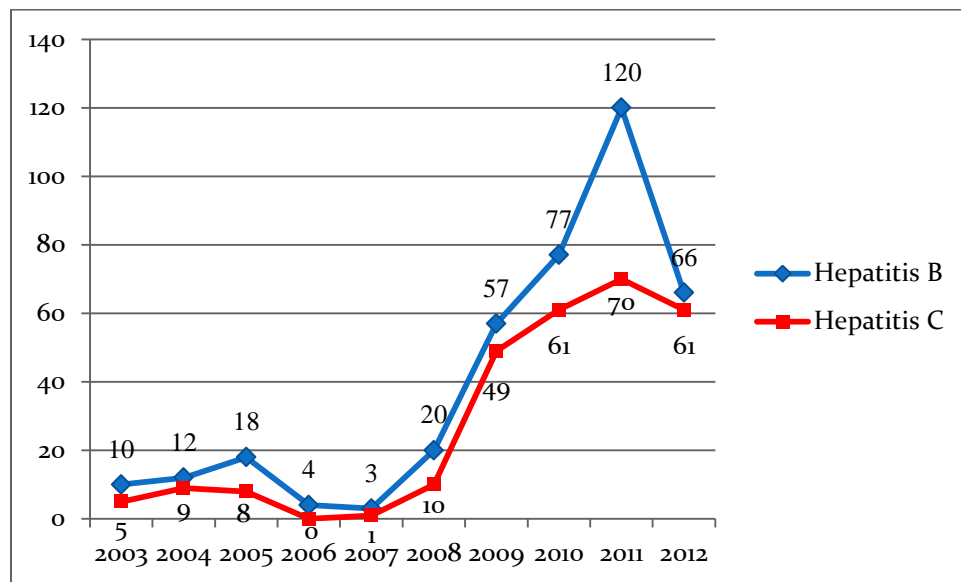
The number of HBV case reports received by DPHSS Office of Epidemiology and Research shows an increase over the past decade with 10 reports received in 2003 and peaked in 2011 with 120 reports. One year later (2012), the numbers of reports was nearly cut in half with 66 case reports received. Figure 19 illustrates this trend.

Hepatitis C

In the U.S., the number of acute cases of HCV increased about 6% with 802 cases reported in 2006 to 850 cases reported in 2010.

Between 2003 and 2012, case reports of HCV were lower than that of HBV. However, there has been a consistent increase in the number of reports received during this ten year period where HCV peaked in 2011 at 70 case reports and then decreased in 2012 to 61 case reports. Figure 19 (below) compares the number of reports received each year between 2003 to 2012 for HBV and HCV. These numbers do not necessarily represent recently contracted new active cases but include any cases not previously recorded in a hepatitis registry dating back to 1980.

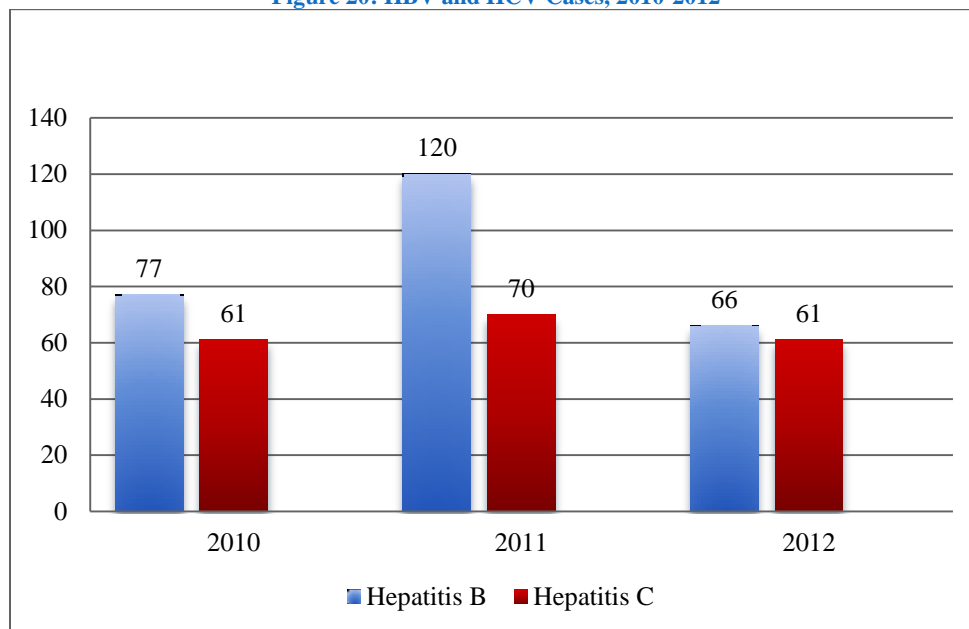
Figure 19: HBV and HCV Case Reports Received, 2003-2012



Source: Annual Summary of Notifiable Diseases (2013).

The bar graph below illustrates the number of HBV and HCV cases from during the past three years. Based on this figure, the number of HBV cases was consistently higher than HCV cases during 2010-2012, which has generally been the trend for the past decade (as shown in Figure 19).

Figure 20: HBV and HCV Cases, 2010-2012



Source: Annual Summary of Notifiable Diseases (2013).

It is important to note that HBV and HCV tests are not routine screening tests under DPHSS STD/HIV Program due to the lack of funding. Efforts to address Hepatitis screening to high risk populations are being addressed.

HIV/AIDS Co-infection

Co-infection with other diseases places those infected with HIV/AIDS at an increased risk of serious, life-threatening complications. Since HIV compromises the immune system, individuals infected with HIV are more susceptible to diseases such as tuberculosis. Furthermore, individuals who engage in high-risk sexual behaviors are also at an increased risk not only for HIV infection but also to other sexually transmitted diseases such as chlamydia, gonorrhea, and syphilis. Similarly, IDUs are at increased risk for acquiring HBC and HCV infection.

During the past few years (2010 to 2012) there has been only one (1) HIV/AIDS-TB case co-infection diagnosed in Guam. However, because of its high prevalence in Guam, tuberculosis remains a serious threat to those who are infected with HIV.

Technical Notes

Surveillance case definitions for HIV

In December 2008, the CDC published “Revised Surveillance Case Definitions for HIV Infection Among Adults, Adolescents, and Children Aged <18 Months and for HIV Infection and AIDS Among Children Aged 18 Months to <13 Years.”

With this publication by CDC, the HIV infection classification system and the surveillance case definitions for HIV infection and AIDS were revised and combined into a single case definition for HIV infection for adults and adolescents (persons aged ≥ 13 years). Furthermore, the HIV infection case definition for children aged <13 years and the AIDS case definition for children aged 18 months to <13 years were also revised.

The full document may be accessed at: www.cdc.gov/mmwr/preview/mmwrhtml/rr5710a1.htm.

At the time this Epi Profile was published in 2014, CDC released another revised surveillance case definition for HIV infection as a result of extensive consultation and peer review. CDC and the Council of State and Territorial Epidemiologists revised and combined the surveillance case definitions for HIV infection into a *single* case definition for persons of *all* ages (adults and adolescents aged ≥ 13 years and children aged <13 years). These revisions were made to address multiple issues including the need to adapt to recent changes in diagnostic criteria, including the development of new testing algorithms that do not use the Western blot or immunofluorescence HIV antibody assays.

The full document may be accessed at: www.cdc.gov/mmwr/preview/mmwrhtml/rr6303a1.htm.

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